Intersecting Helical Light May Render Obsolete Fluorescent Molecules in Fluorescence Microscopy

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Introduction

Fluorescence microscopy is essential for creating (extrapolated) three-dimensional mappings of biological molecules. These could include DNA or RNA protein chains, cellular organelles, the spike proteins of virus particles, or other biological structures.

Electron microscopy may be used to create three-dimensional images of biological materials in cases where researchers do not care whether the biological material is destroyed in the imaging process. Certain research applications demand the observation of biological molecules over time as they carry out the natural processes associated with their genetic programming.

While fluorescence microscopy has provided a limited ability to visualize three-dimensional processes; each fluorescent molecule acting as a lantern shining light from various angles as they commingle with the biological material being observed; this method is both costly and does not illuminate all parts of complex three-dimensional biological structures simultaneously. This limitation means that complete maps of biological activity cannot be readily created using fluorescent molecules.

Fluorescence microscopy is also frustrated by the tendency of liquid mediums (including biological fluids) to distort light before it may be captured by a microscope.

Abstract

(ibid. 15 November 2023) As helical light may easily pass through atmosphere without the typical scattering effect induced by atmosphere, it stands to reason that such light may pass through hydrous mediums with similar resistance to scattering, particularly over the short distances required for the microscopy application.

As helical light may, furthermore, be made to strategically intersect from opposing directions in order to generate point emissions of light from remote points in space without the presence of a per se light source (e.g. a fluorescent molecule, a light bulb, etc.,) one might attempt to carry out fluorescence microscopy in a novel and more effective manner by deliberately bringing about the intersection of helical light at a various points within a biological structure and measuring the emitted light from one or more perspectives. These light emissions would be of greater intensity than those associated with fluorescent

molecules and the timing and position of the illumination could be predictably controlled.

While the return light would be non-helical during the return trip, a complete real-time map of the structure would allow for a high degree of algorithmic correction of the captured images.

Conclusion

As this process would be safe for use within human tissues, this method of remote instigation of omnidirectional point light emission could plausibly be used in the medical imaging application in living human beings. This would be particularly beneficial in the fields of mapping neurological structures, neurological functions and providing optical rather than electrical stimulus to the brain in experiments involving pathway mapping and deep brain stimulation without the use of damaging electrical probes.